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ABSTRACT

Although Montana has not required school districts to write technology plans, districts need such plans to apply for technology grants and the E-rate discount on Internet service. This document was created to help Montana's primarily small school districts meet new demands related to technology and understand the role that technology can play in teaching, learning, and administration. Chapter 1 describes elements of a well articulated technology plan: technology vision statement; inventory and needs assessment of hardware, software, technology infrastructure, and staff expertise; goal statements and sample strategies for technology integration into curriculum and instruction, ongoing training and technical assistance, resource coordination, community connections (including adult programs), and technology support services; a sample action plan; and plans for evaluating technology implementation and impact. Chapter 2 describes the Technology Literacy Challenge Fund (TLCF), which provides federal funds through state education agencies to support local education agencies' technology plans. Montana's priorities with regard to the fund are listed, followed by eligibility and application information. Chapter 3 discusses the Universal Service Fund's E-rate (discounts on telecommunications services), what is and is not covered by the discounts, FCC requirements, and the application process. Appendices include a glossary of technology terms, technology consultants in Montana, print and Web-based resources, sample forms, a staff technology survey, and further information on TLCF and E-rate applications. (SV)

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TECHNOLOGY PLANNING

for

MONTANA'S SCHOOLS

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INTRODUCTION

Unlike most states, Montana has not required school districts to write technology plans. However, with the Technology Literacy Challenge Grants and the Universal Service Fund or the E-Rate, school district technology plans are required as part of the applications. Unfortunately, the requirements may be different for different programs. Besides, as school districts spend more money on technology and students become more involved with computer learning, the Internet, interactive video, etc., it is important for school districts to take time to plan their technology program. In an effort to help school districts meet these new demands and understand the role that technology can play in their teaching, learning and administration, this document has been created.

It is important for school districts to take time to plan their technology program.

The Montana Association of County School Superintendents, in collaboration with the Montana Small School Alliance, applied for and received a grant from the ARCO Foundation so that this document could be created and published. The document includes explanations, samples and resources for use in creating a district technology plan. It also provides specific information about modifying the district plan to fit both the Technology Literacy Challenge Grant guidelines and the E-Rate technology plan requirements. However, of all the areas in which educators work, technology is the fastest changing. Because of this, the committee, which created this document, recognizes and urges districts to stay abreast of technology and program changes.

The group has drawn on material and research which is most current and represents the best thinking in educational technology at this time. Please see the bibliography for credits. The committee of county school superintendents who took time from their busy schedules to plan the document includes:

Mary Hudspeth, Lincoln County
Debra Ann Keller, Yellowstone County
Rachel Vielleux, Missoula County
Jules Waber, Powell County

Shirley Barrick, Fergus County School Superintendent, was especially helpful as a reader of the draft. We would like to express our appreciation for the support of the Office of Public Instruction for the layout of the document, and in particular Michael Hall, Instructional Technology Specialist, who spent a great deal of his professional time working with the committee and the editor. Also, we appreciate the assistance of Gary Graves and the Northwest Regional Educational Laboratory of Portland, Oregon. We want to thank Barbara Harris for her able assistance on the project. We especially appreciate the Valier School District allowing us to include their E-Rate technology plan as a model and the Mission Valley Consortium for their Staff Technology Survey. They are complete yet succinct excellent examples.

Because this is a relatively new area for many educators, we have included a rather extensive glossary of technology terms [see Appendix A-1]. There are literally thousands of resources on technology available. We have provided what we believe to be the most helpful in three areas [see Appendix A-2]. First, we have listed some of the current periodicals which are useful to educators. These are listed under print resources. Next, we have provided a list of consultants from Montana who are willing to help small schools with their technology planning. Last, in part 3 of Appendix A-2 is a short list of web sites. Your local county superintendent may know of other resources within your area. Also, because computer networking is relatively new, we have included Guidelines for and an Acceptable Use Policy in Appendix A-3.

We hope that this proves to be a valuable resource for Montana school districts.

Dr. Claudette Morton, Editor
Executive Director of the
Montana Small Schools Alliance

The local technology plan provides a template for the building of strong technology infused curriculum and instruction.

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CHAPTER ONE

TECHNOLOGY PLANNING

Technology -- A Means, Not An End!

Educators are finding expectations increase as the need for technology use in schools expands rapidly. As a result, technology planning is becoming a priority among schools, educational organizations, and policymakers. Practical technology planning provides a blueprint to ensure that the most appropriate technologies are effectively infused into the curriculum and instruction in the district. A technology plan creates a vision for the future that includes equitable access, appropriate purchasing decisions, clear targets for technology use, and desired goals for learners. In addition, a well-organized, community -based plan builds support from community members.

Practical technology planning provides a blueprint to ensure that the most appropriate technologies are effectively infused into the curriculum and instruction.

A good plan ensures that students are actively engaged in learning and achieving to high levels in a challenging curriculum. Districts that do not utilize thoughtful technology planning face the risk of making expensive mistakes and jeopardizing the education of their students.

Elements of a Well-Articulated Technology Plan

- Vision Statement
- Inventory
- Needs Assessment
- Challenge Statements/Goals
- Strategies
- Action Plan
- Evaluation

I. Technology Vision Statement

Vision statements for technology integration express the fundamental beliefs that guide a district in their efforts to infuse technology into the instructional and administrative programs. Belief statements might include thoughts such as:

- Technology is a tool to improve student motivation and learning.
- Classroom teachers will become guides directing students in learning activities rather than being the conveyors of facts and information.

- Technology will benefit students in the following ways:

  —They will have greater control over their own learning,
  —They will be able to adapt to our rapidly changing society, and
  —They will be able to create, access, exchange, and analyze information readily from electronic sources.

- Technology supports learning by:

  —Serving as a tool for teaching and learning,
  —Accommodating different curriculum needs,
  —Accommodating different learning styles, and
  —Providing access to information.

Sample elements of a vision statement might include:

Serving as a tool for teaching and learning.

All students in the school district will be able to access and effectively use any information needed to function as a productive member of the 21st century society.

Teachers in the district will be able to use state-of-the art technologies to prepare and deliver their lessons. -

II. Needs Assessment & Inventory

Planning begins with identifying what resources the district currently has, what it can do, and then looking at what the district would like to do. This is generally considered to be a needs assessment. The foundation of a needs assessment in technology is a complete inventory of hardware and software currently available, an explanation or blueprint of electrical and computer connections, a determination of how technology is currently being used in the curriculum and an assessment of staff technology knowledge and skills. The needs assessment is a continuing process. After the inventory is completed, challenges and goals are identified and strategies to meet those goals are developed based on the perceived needs. The needs assessment is also used to develop appropriate evaluation.

A. Hardware/Software Inventory

It is critical that a complete inventory be made of the district's hardware and software and that it be kept up-to-date. While some inventories are just a listing of numbers and kinds of machines, there are other factors to consider. These include:

- size of hard drive and the amount of free space available,
- operating speeds, and

- amount of RAM.

A list of the district's current inventory probably contains many older items which are not Internet or advanced-multimedia capable, but are useful to learn keyboarding skills, word processing and basic multi-media operations. The district should consider how to best integrate them into its curriculum goals. Selectively upgrading older computers can also be a cost-effective approach to extending the life of existing technology. [See Appendix B-1 for some upgrade examples.] By utilizing older less powerful machines for non-Internet, but still educational functions and by looking at selective upgrades, the district may be able to have very effective computer technology at less cost.

The software part of the technology inventory should include not only the instructional and administration programs, but operating system software which connects and maintains the system.

Provided in Appendix B-1 are a sample and blank technology forms which can be used for an inventory of current hardware and software.

Planning begins with identifying what resources the district currently has, what it can do, and then looking at what the district would like to do.

B. Infrastructure

Part of the technology inventory should also include an assessment of the district's current infrastructure. This includes:

- Number of classrooms in the building
- Electricity:

1. Current capacity of service to the building
2. Internal wiring:

   The current number of outlets in classrooms, media center, labs

3. Possible technical assistance can be provided by:

   a. The district's power supplier,

   b. Fire inspector, and/or

   c. A local electrical contractor.

- Phone service:

1. Number and quality of lines into the building(s),
2. Technical assistance from the district's local phone service,

- Satellite dish/cable television, and

- A blueprint of the school building showing existing lines, connections, etc., for all of the above. (See Appendix D-2.)

C. Staff Inventory

It is important to know and be able to utilize the existing expertise of the staff.

It is important to know and be able to utilize the existing expertise of the staff, whether it is the ability to teach certain skills, i.e., word processing or writing on the computer, to running specific programs, i.e., SkillsBank. It is also important to know what staff regularly utilize the Internet, e-mail and specific networks, even if it is not at school. Appendix B-2 provides a sample form of the staff skills inventory for the district to utilize.

D. Needs Assessment

When the inventories of what infrastructure, hardware and software are in place, as well as what technology skills and knowledge the staff possesses, it is time to move to the needs assessment part of the plan. Some questions to guide the district in its thinking here include:

1. What specific technologies are desired to match the district's vision of learning, e.g., distance learning (satellite, cable TV, video conferencing, video telephones, etc.), interactive media, use of the Internet and the World Wide Web, instructional video and telecommunications?

2. What will the district need to effectively make those technologies available?

- Additional phone lines
- A telephone "server" as part of a Local Area Network (LAN)
- Fiber-optic wiring, category 5 (CAT-5), T1
- Hardware/software

3. What electrical wiring will be needed to meet the district's goals?

4. What staff development needs can be identified and how can the district meet these needs?

Review the needs assessment after each step.

5. In order to connect to the Internet, what specific hardware, software, wiring, etc., will the district need? [See Appendix B-3.]

As the district continues through technology planning it will want to review the needs assessment after each step for further guidance.

III. Challenge/Goal Statements and Strategies

A. Integration into Curriculum and Instruction

Challenge

Technology will be used to provide and support a demanding curriculum through engaging instructional practices.

Sample Strategies

1. Create instructional models that are interactive and generative.

   Example: *Given a thematic unit on insects, students will create a slide show presentation on KidPix incorporating information collected and pictures taken during their research.*

2. Develop instructional methods that meet individual students' needs.

   Example: *Given a study of South America, students will have the opportunity to extend research on related topics of choice through use of the Internet, presentation software, fax machine, etc.*

3. Develop lifelong skills such as critical thinking, information processing, problem solving, and decision making.

   Example: *Given a study of native birds, students will create a database of sightings, a spread sheet recording numbers of types and reporting information in graph form to be included in presentation.*

4. Develop ways in which students can evaluate and assist others in learning.

   Example: *Given a thematic unit on survival, students will video tape presentations on basic survival techniques in different situations..*

5. Create opportunities for "accessing real-life information and experience."

   Example: *Given a study of architectural design, students will create a computer-generated model, communicate with a professional architect via the Internet about the model, revise their computer model and construct a real model.*

Technology will be used to provide and support a demanding curriculum through engaging instructional practices.

Challenge

The technology plan will be linked to substantive and meaningful long-term staff development. The opportunities for inservice will be scheduled over time since it is seldom possible to assimilate the essential skills and their application on a one-time basis.

Sample Strategies

1. Select and train a technology planning committee. This committee is critical to the success of any technology plan. It should be broad-based and include students, board members, community members, business persons, and librarians, in addition to members of the staff and administration. This committee must oversee the implementation of the technology plan and identify those areas of need among the staff which could be bolstered by training. The committee will monitor the progress toward identified goals and revise the plan on at least a yearly basis.

2. All new purchases of hardware and software will be accompanied by appropriate training in their use, since teachers will determine the rate at which computer technology is integrated into the curriculum. This professional development will include basic skills in the operation of the equipment, as well as training in the effective utilization of technology in the curriculum.

Every attempt should be made to utilize the teachers teaching teachers model.

3. Although the district will take responsibility for providing professional development for teachers, each individual must make a personal commitment to address their own professional growth. Each staff member will establish personal professional development goals on a yearly basis.

B. Ongoing Training and Technical Assistance

Challenge

The district will provide ongoing training and technical assistance.

Sample Strategies

1. The district shall establish a mentoring program for staff members. The mentors are not limited to local district staff, but can involve electronic mentoring from other districts. Every attempt should be made to utilize the teachers teaching teachers model.

2. The area consortium will provide a professional development specialist who will travel among the member districts, as well as presenting training in central locations. The funding to support this work will come all or in part from Technology Literacy Challenge Grant money where available or Eisenhower funds. This person will coordinate these activities with the professional development associated with ESEA Eisenhower Title II money. If Title VI money is used to purchase computer programs, those programs will fit with the entire technology plan, and they will be accompanied by appropriate training of staff.

3. The district will ensure that at least one person in the district is trained in the rudiments of technical trouble shooting. This need not be a staff member, but could be a community member.

4. The district will provide access to professional publications in the field of technology to aid staff members in keeping abreast of technological changes which have an impact on education.

C. **Coordination of Resources**

The district must coordinate existing and projected financial resources to implement the long-range technology plan.

Challenge

The district will coordinate existing and projected financial resources to implement the long-range technology plan.

Sample Strategies

In addition to regular general fund money, the district has access to other funds to support technology acquisition and professional development. Certain of these funds are earmarked for very specific uses. Those funds will be appropriately incorporated into the overall technology plan.

- Title II and Title IV money will be used to purchase computer programs which have been identified in the plan.
- TLCF money will be used primarily for professional development.
- Timber Harvest and building reserve money will be used for acquisition of hardware and software.
- Adult education money will be used to train community members in the use of the school's technology.
- Title I money will be used to purchase computer programs for use in that program.

D. **Community Connections**

Broad-based representation on a community technology committee will enrich the plan with its breadth and diversity and promote community support for mutually developed goals.

1. Community Involvement

Challenge

School administrators, the school board, business representatives and local citizens will work closely to articulate a clear vision of what technology is needed, how it might be obtained, how it is to be used, and how faculty are to be trained. Broad-based representation on a community technology committee will enrich the plan with its breadth and diversity and promote community support for mutually developed goals.

Sample Strategy

Although each school district maintains local control of its plan, the district might consider including the following persons on the community technology committee:

trustees
school administrator(s)
school clerical staff
high school representative(s)
middle/junior high school representative(s)
elementary school representative(s)
student representative(s)
technology representative(s) and telecommunications providers
higher education representative (if available)
county commissioner
county technology representative
city council representative
business representative(s)
small business representative(s)
parents
literacy volunteers
senior citizen representative
health care representative
law enforcement representative
Internet user group representative
citizen representative not related to school

Joint efforts of sharing of resources will enhance learning at all levels.

A large committee might develop its plan in a sub-committee structure. To create a smaller working committee, one person might serve in more than one role; i.e., a small business representative might also be a parent or a citizen not related to the school.

2. Adult Literacy and Education

Challenge

School districts will develop plans in cooperation with adult literacy programs where available. Through collective planning, citizens in the community can be best served by both partners. Joint efforts of sharing of resources will enhance learning at all levels.

Sample Strategies

1. Districts offering adult education may provide a structured approach to adult literacy for those adults registered in the programs utilizing appropriate technology for both instruction and practice.

2. Districts may offer to citizens in the community the opportunity to enhance their skills and enrich their lives through the use of available technology by having computer labs available in the evenings and/or on weekends.

E. Supporting Services

Challenge

The district will provide supporting resources to ensure successful and effective use of technology.

Sample Strategies

1. The district will provide access to one or more of the following publications: *Macworld, Electronic Learning, Technology and Learning, MacWeek, Internet World, CD-ROM Professional, New Media, Morph's Outpost.*

2. In addition to training someone as a trouble shooter, the computers will be on a scheduled plan of maintenance. Members of the area consortium will provide a professional technician to implement and support the schools' technical capabilities. Each member district will have a building network manager who will be responsible for the following:

   - Routine disk management
   - Monitor available space
   - Monitor CPU utilization
   - Monitor network utilization
   - Ensure routine back-ups with appropriate off-site storage

3. The Technology Committee will design a security plan which will take into consideration natural disasters, theft and vandalism, anti-virus software, screen savers, and automatic time out for machines not in use.

The district's computers should be on a scheduled plan of maintenance and replacement.

IV. Sample Action Plan [See Next Pages]

Action Plan

Challenge	Strategy	Action	Who	Year 1	Year 2	Year 3	Year 4	Year 5
Curriculum Integration	Create opportunities for accessing real-life information and experiences	Gain access to the Internet for the library	Responsible person (administrator, tech coordinator, etc.)	Source: E-Rate discounts $X,XXX				
		Purchase two new computers, upgrade others and connect them	Responsible person		$X,XXX New machines	$XXX Upgrades	$X,XXX New machines	$XXX Upgrades
Professional Development	Internet training for 3 teachers	Train teachers	Responsible person arranges outside provider	$X,XXX				
	Internet training for rest of the staff	Train teachers	Responsible person arranges for previously trained staff		$XXX	$XXX	$XXX	$XXX
Community Involvement	Open the computer lab	Schedule 2 nights per week for community access	Rotating volunteer		$XXX	$XXX	$XXX	$XXX

Action Plan

Challenge	Strategy	Action	Who	Year 1	Year 2	Year 3	Year 4	Year 5

V. Evaluation

Technology implementation is a continuous process that adapts to the district's changing circumstances and includes ongoing evaluation. Effective evaluation will force planners to rethink and adapt objectives, priorities, and strategies as implementation proceeds. Continuous evaluation also facilitates making changes if aspects of the plan are not working.

Evaluating the implementation of a technology plan can be conducted by various means. Simple observations, both negative and positive, that have been made by students and teachers using the technology are the most helpful. Interviews and informal meetings with both instructors and students can draw out the lessons that both groups have learned from using the technology. A simple written survey can assist in measuring the extent to which the plan has met its original objectives and expected outcomes. The following are some of the questions that should be addressed when planning the evaluation of the implementation of your technology plan:

Technology implementation is a continuous process that adapts to the district's changing circumstances and includes ongoing evaluation.

- ◊ How and when will the district evaluate the impact the technology plan has on student performance?
- ◊ Who will be responsible for collecting ongoing data to assess the effectiveness of the plan and its implementation?
- ◊ What windows of opportunity exist for reviewing the technology plan? (For example, the plan might be reviewed during curriculum review cycles.)
- ◊ How will accountability for implementation be assessed?
- ◊ How will the district assess the level of technological proficiency gained by students, teachers and staff?
- ◊ How will technology be used to evaluate teaching and learning?
- ◊ What is the key indicator of success for each component of the plan?
- ◊ How will the district analyze implementation decisions to accommodate for changes as a result of new information and technologies?
- ◊ What organizational mechanism will be created that allows changes in the implementation of the technology plan and in the plan itself?
- ◊ Has the money spent by the district been effective in light of the established technical plan?
- ◊ Has the district done what it said it will do in its technology plan?

Chapter Two

Technology Literacy Challenge Fund (TLCF)

Public Law 103-382
ESEA Title III: Technology for Education
A new source of federal money through OPI
for Integrating Technology
Staff Development
Connecting to the Information Super Highway

The TLCF provides competitive grants to school districts to assist in the effective integration of technology into their local curriculum and instruction.

I. Purpose

ESEA Title III of Public Law 103-382, Improving America's Schools Act of 1994, provides funding to state education agencies with approved applications to award grants, on a competitive basis, to local education agencies to carry out the following activities:

1. Develop, adapt or expand existing and new application of technology to support the **school reform** effort;

2. Conduct projects of sufficient size, scope and quality to improve student learning and, as appropriate, support professional development and provide administrative support;

3. Acquire connectivity linkages, resources and services, including the acquisition of hardware and software, for use by teachers, students and school library media personnel in order to improve student learning by supporting the instructional program;

4. Provide ongoing professional development in the integration of quality educational technologies into school curriculum and long-term planning for implementing educational technologies;

5. Acquire connectivity with wide area networks for purposes of accessing information and educational programming sources, particularly with institutions of higher education and public libraries; and

6. Provide educational services for adults and families.

II. Montana Priorities

Funds shall be used to enhance student learning through

- Integrating technology into the curriculum and instruction at the district and school levels and providing appropriate staff development; and/or
- Obtaining and maintaining connections to the information superhighway, and providing the appropriate staff development.

III. Eligible Applicants and Fiscal Agents

School districts or a consortia of districts may apply for funds. One school district, the prime applicant, must serve as the fiscal agent.

Only one application will be accepted from a district, consortia, or districts in a consortia.

To apply for the TLCF grants, local district must have a comprehensive, long-range technology plan.

IV. District/Consortia Technology Plan

All applicants must submit their local long-range technology plans (projecting 3 to 5 years) to OPI as part of the application process. For consortia applications, one consortiawide plan is required. If districts within the consortia have individual plans, a copy of those plans must be on file with the host district.

In Appendix C-1, the reader will find the complete list of requirements for the technology plan required as part of this grant application process. In Appendix C-2, the reader will find the same form, but with a page number from Chapter Two of this guide written in the blank at the end of each question. If the reader turns to that page number in this guide, he/she will find a discussion or example of the required TLCF element addressed. The reader can use this section as a starting point, but will need to expand and provide specifics representative of their district. For example, for A in the TLCF Technology Plan Requirements, the reader should turn to page 2 of this document. There the reader will see the beginning of a discussion of a needs assessment and in particular on page 3 the hardware/software inventory and planning for appropriate acquisitions. This is what is needed to answer part A.

V. Future of the Technology Literacy Challenge Fund

Though OPI has awarded the first round of grants at the time of this document's publication, it is expected that this source of federal grant money will continue for another three to five years. For further information on this grant program contact:

Michael Hall, Instruction Technology Specialist
Office of Public Instruction
444-4422 ph
mhall@opi.mt.gov

Chapter Three

The Universal Service Fund: The E-Rate

How the Communications Industry is Going to Help Education

I. What is it?

The federal Telecommunications Act of 1996 offers federally funded discounts - termed the E-Rate - to schools, and libraries to purchase certain telecommunications services, internal connections and Internet access. These discounts range from 20 percent to 90 percent,depending on a school's or library's location and level of economic disadvantage. **Schools will not receive the money directly.** In fact, they will receive discounted rates on telecommunication services provided to them. The amount available annually for the school and library discounts was scheduled to be about $2.25 billion. However, the account has only been collected for six months as of this printing, and there is a significantly smaller amount available to schools.

E-Rate provides discounted rates on telecommunication services.

Montana libraries and K-12 public and nonpublic schools may apply for the discounts through the National Exchange Carrier Association (NECA), which was designated by the Federal Communications Commission to administer the E-Rate program. Most Montana schools and libraries qualify for substantial discounts.

II. What Is Covered by the Discounts?

The discount applies to all telecommunications services (local and long distance), installation, internal connections, maintenance of internal connections and Internet access, including communications links to Internet service providers, e-mail, routers, hubs, network file servers and wireless local area networks.

Qualifying services and products purchased after November of 1996 may be entitled to the discounted rates. However, the mechanism for obtaining this retroactive discount has yet to be determined.

III. What Isn't Covered by the Discounts?

Teacher and employee training, voice mail, fax machines, modems, software and computers will not be covered by these discounts.

The FCC is still refining the rules governing E-Rate. Still at issue is disaggregation of buildings within a district when the buildings have different levels of poverty.

IV. FCC Requirements for the E-Rate Technology Plan

According to the Federal Communications Commission (FCC) order, school districts' plans should include two major portions:

A. A technology inventory and assessment: and

B. Specific plans for using those technologies and integrating them into their curriculum. A district should address both their short-term and long-term plans.

The technology inventory and assessment must, at a minimum, address the following six categories. In these categories, schools are required to report, along with the technology they currently have, any purchases, installations, or training that they have budgeted or planned for this, the next or future academic years.

A technology plan must specify how technologies will be used and how they will be integrated into the curriculum.

1. A school's computer equipment, whether the computers have modems, and the speed of those modems.

2. A school's internal connections. If a school has specific plans to organize volunteer labor to install internal connections, those plans should be included in the report.

3. The computer software a school needs for its computers to communicate, both over the school's internal network and with any currently accessible, public telecommunications network.

4. The experience and training a school's staff has in the use of the equipment that will be connected to the telecommunications network.

5. Any contracts the school district holds for the maintenance of its computer equipment.

6. The capacity of the school's electrical system to handle simultaneous users.

V. The E-Rate Application Process

The first hurdle of the application process is having an approved technology plan for the school district. If the district has been successful in achieving a federal grant which pertains to technology, i.e., Goals 2000 or one from the Technology Literacy Challenge Fund, then their technology plan is deemed approved. If not, the district needs to submit their technology plan, making sure that the questions in part IV of this chapter are answered. The plan must be submitted and approved by OPI. The Office of Public Instruction has selected a few people who are responsible for selecting peer readers to evaluate the technology plans. For small schools, E-Rate technology plans can be sent to:

Dr. Claudette Morton
Montana Small Schools Alliance
442-2180 ph, 442-2194 fax
claudette_morton@metnet.mt.gov

Most school districts now have approved plans, but for those which do not, they can still submit them.

After having an approved technology plan, a school district must complete Forms 470 and 471 and this must be done every year by July 1 for a school district to receive the E-Rate discount for the upcoming year. Information updates on the status and changes in this process can be found on METNET.

VI. Why Bother

Because this is a new program, many small schools are wondering if it is going to be worthwhile. Because it can pay for ongoing connections, long distance phone costs, Internet access, etc., it will be most helpful.

Montana schools need to get in on the E-Rate.

There has also been some concern about how to figure the poverty rate, if a school does not have a hot lunch program. The OPI and the Montana Small Schools Alliance have sent letters to the Federal Communications Commission asking that schools be allowed to use another alterative which the Superintendent of Public Instruction would give the schools.

It is important that Montana schools get in on the E-Rate and that they are there on the ground floor. This may have a bearing on future funding, and this program is expected to be ongoing.

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Appendix A-1

Glossary of Technology Terms

ANSI (American National Standards Institute) - This is the principal group in the U.S. for defining standards. ANSI represents the U.S. in the International Standards Organization (ISO).

ASCII (American Standard Code for Information Interchange) - A seven-bit binary code standardized by ANSI for use by personal computers and some mainframes to represent alphanumeric and graphical characters. An additional bit is included to form an eight-bit character byte.

analog transmission - Transmission of a continuously variable signal at a constant rate. The normal way of transmitting a voice signal has been through analog transmission.

AppleTalk - A local area network developed by Apple Computer, Inc. that can be used by both Apple and non-Apple computers for communication and sharing of resources such as printers and file servers..

application - Software that performs a specific function, such as e-mail.

automated circulation system - A library system in which some or all of the activities related to the loan of library materials are performed by computerized procedures.

backbone - A wiring scheme that is used to provide interconnections between telecommunications closets, equipment rooms, and entrance facilities in a telecommunications wiring system.

bandwidth - The range of frequencies that can be passed by a transmission medium. A measure of the information transmission capacity of a medium to transmit a signal. The greater the bandwidth, the greater the amount of information that can travel over the medium at one time.

baseband - A transmission method in which the entire bandwidth of the transmission medium is used by a single digital signal.

baud - A unit of signaling speed, usually used interchangeably with bits per second.

bit - An element of a byte that can represent one of two values, on or off.

bit rate - The speed at which bits are transmitted, usually expressed in bits per second (Bps).

bridge - A device used to connect local or wide-area networks that use the same protocol.

broadband - A transmission method in which the bandwidth can be shared by multiple simultaneous signals because the network's range of transmission frequencies is divided into separate channels, with each channel used to send a different signal.

bulletin board service (BBS) - A system for providing online announcements and conferencing. Access is usually through dial-in modem.

byte - Each storage location within main memory, identified by a memory address.

CAT 5 (category 5 cable) - Eight standard copper telephone wires, encased in a plastic sheath.

Central Processing Unit (CPU) - The unit that executes programmed instructions, performs the logical and arithmetic functions on data and controls input/output functions.

client - A node that requests services from a server.

client-server computing - A technique in which processing can be distributed between nodes requesting information (clients) and those maintaining data (servers).

coaxial cable (COAX) - A transmission medium with a single-wire conductor. It is noted for its wide band width and its low susceptibility to interference. The capacity of coaxial cable is much more limited than that of fiber optic cable.

common carrier - A licensed, private, utility company that supplies data and voice communications services.

Compact Disk Read Only Memory (CD-ROM) - A prerecorded, non-erasable disc that can store over 650 MB of digital data equal to 250,000 pages of text or 20,000 medium resolution images.

Compressed Video - Video and audio signals converted from regular analog signals to digital signals, making it possible for a network to carry more information.

Computer Applications - The use to which a processing system is put, such as word-processing and creating spreadsheets and mailing lists.

Computer-Assisted Design (CAD) - A term applied to programs (and workstation) used in designing engineering, architectural and scientific models ranging from simple tools to buildings, aircraft, integrated circuits and molecules.

Computer-Assisted Instruction (CAI) - A type of educational program designed to serve as a teaching tool. CAI programs use tutorials, drills, and questions-and-answer sessions to present a topic and to test the student's comprehension.

Computer Literacy - A functional working knowledge of a number of the generic tools, at a level consistent with one's overall education. Thus, as students increase the depth and breadth of their overall education, they are expected to grow in the breadth and depth of use of the generic computer tools.

CPE (customer premises equipment) - Telecommunications equipment that is physically onsite at a school, business, or home.

data network - A communication system used for data transmission that has the potential to provide multiple access paths among users.

dedicated phone line - A phone line used for a specific telecommunications activity, i.e., a modem line used for dial-in/out only.

desktop publishing - Using a personal computer to produce high-quality printed output ready for commercial printing.

digital transmission - A transmission of discrete, separate pulses or signal levels; it contrasts with analog transmission.

distance learning - An organized system of delivering educational information and materials between two or more geographical separate sites through a variety of transmission modes.

Disk Operating System (DOS) - A single-user operating system for the PC.

e-mail (electronic mail) - Written messages that are transmitted across networks or within one network. The messages are usually stored on an e-mail server and can be accessed by the addressee only.

Ethernet- A name for a physical layer networking protocol that is based on a contention access scheme. Originally running at 10 Mbps over coax, the standard now also runs over twisted pair wire (10BaseT) and Fiber (10BaseF). A faster variant of the standard runs at 100 Mbps (called "Fast Ethernet" or "100BaseT"). A still faster emerging standard is called "Gigabit Ethernet" and will run at speeds of 1,000 Mbps.

EtherTalk - Apple Computer's implementation of Ethernet.

Fiber optic cable - Glass or plastic fibers over which modulated light pulses from laser or LED (light emitting diode) can transmit data. It is not subject to interference or electronic eavesdropping.

Fiber optics - A signal conducting a medium that conveys light waves through transparent fiber. It allows high speed transfer of voice, video and data.

File Transfer Protocol (FTP) - An Internet protocol that allows for files and programs to be moved or downloaded from one computer to a remote computer.

Full-Motion video - A standard video signal for 30 frames per second and 525 horizontal lines per frame, which is capable of complete action.

gateway - A device connecting two or more networks that may use different protocols and media. Gateways can connect local area networks or wide-area networks.

gigabyte (Gb) - A measurement of memory space equal to a billion bytes.

gopher - Software which permits searching of files on the Internet or remote hosts using layered menus. Text from these files can be read on-line or transferred to a computer.

hardware - The physical components of a computer system, such as circuitry, keyboard and display.

hub - A concentrator or repeater in a star topology network where node connections meet.

HyperCard - A hypermedia application development system from Apple. Using visual tools, the user builds stacks of cards that hold data with hypertext links between them.

Hypermedia - A computer can be used as the "glue" connecting multimedia. When this is done, the media can be used in an interactive, non-linear manner, and can include use of a full range of computer capabilities.

Hypertext - Linking related information. Selecting a word in a sentence, and retrieving information about that word, if it exists, or the next occurrence where the work is found.

infrastructure - The basic facilities, equipment and installations needed for the functioning of a system.

interactive media - A program that interacts with the user, who is usually (although not necessarily) sitting at a display of some sort and who is using some sort of input device to provide responses to the program.

Internet - A group of interconnected networks. The National Science Foundation (NSF) was given responsibility for supervision of the Internet when the Department of Defense separated Milnet, the military production network, from research network in 1983.

Internet compatible - Computer has sufficient operating speed, hard drive capacity and RAM to load or download information and graphics and can accept an internal or external modem or can be networked to a server.

intranet - A group of interconnected networks set up to distribute information within an organization and usually only accessible within the organization; it may use a familiar World Wide Web browser for navigation.

Internet service provider - A business or enterprise that acts as an intermediary between the Internet and the connecting individual or agency. Usually geographically close, the connecting site can vary from a commercial organization to a university.

ISDN (integrated services digital network) - A network specification for transmitting voice, data, and video over existing, two- or four-wire telephone lines; it is not yet widely available.

LAN (local area network) - A computer network located within a building or group of buildings. The network is a system of software and hardware and is usually connected by a common data transmission medium.

LCD (liquid crystal display) - A display technology that uses rod-shaped molecules that flow like liquid and bend light.

LCD Panel - Also called a projection panel, it is a data projector that accepts computer output and displays it on a see-through liquid crystal screen that is placed on top of an overhead projector.

Mb (megabyte) - A measure of memory equal to one million bytes.

MHZ (megahertz) - One million cycles per second.

microwave transmission - Sending high frequency radio waves from a tower at one point through the air to a receiving dish at another site.

modem (modulator-demodulator) - A device that connects a computer and a phone line, or a terminal server and a phone line. It converts digital and analog signals.

mouse - An electronic device that controls movement of a cursor on a video display, terminal, or monitor, when the user by hand rolls the device along a flat surface.

multimedia equipped - has software installed, e.g., hypercard, that allow use of slides, movies, overhead projection, audio tape, video tape, CD Rom or laser discs in combination of two or more.

multiplexing - The division of a single transmission medium into multiple, logical channels supporting many simultaneous sessions.

network - A system of software and hardware connected in a way to support data transmission.

network device - A computer, printer, modem, or any other device connected to a network.

NIC (network interface card) - An adapter board that provides the physical connection between a computer and the network medium.

node - Any device on a network that has an address.

NOS (network operating system) - Controlling software for a network that oversees resource sharing and can provide security and administrative tools.

on-line - Establishing a connection with another computer via telephone lines or through a network.

protocol - A standardized set of rules that specifies the format, timing, sequencing, and error checking for data transmission between network devices.

print server - A network device that allows multiple users to send print jobs to a printer regardless of whether that printer is currently busy.

RAM (Random Access Memory) - A storage device into which data can be entered and read. Information stored is lost when the computer's poser is turned off.

repeater - A device that regenerates signals to extend transmission distance.

router - A network device that connects networks and forwards data of a specific protocol type based on an address.

scanner - A device that reads text, images and bar codes. Text and bar code scanners recognize printed fonts and bar codes and convert them into a digital code.

server - A network device that provides shared resources and services to other network devices (clients).

software - A program or set of instructions that tells a computer how to accept and manipulate data in order to turn it into information.

sound card - A personal computer expansion board that records and plays back sound, providing outputs directly to speakers or an external amplifier.

TCP/IP (Transmission Control Protocol/Internet Protocol) - A set of computer commands that dictate how the computers on the Internet will communicate with each other.

T1 - A 1.544 megabit per second (Mbps) multichannel transmission system for voice and/or data provided by common carriers.

telecommunications - The transfer of data from one location to another over communication lines.

telecomputing - A subset of telecommunications, which is the process of communicating electronically from one place to another.

teleconferencing - Simultaneous visual and/or sound interconnecting using telecommunication links that allow individuals in remote locations to see and communicate with each other in a conference arrangement.

Telenet - An Internet service that allows users to log on to remote host computers as "guest" users, providing access to the files as if they were actually at the host site.

terminal server - A network device that connects remote computers to a network through the use of phone lines and modems.

token passing - A network access method that requires nodes to wait for their turn before transmitting data.

Token ring - A four or 16 megabits per second (Mbps) network protocol using a ring topology and a token-passing access method.

two-way video and audio - The ability to transmit and receive pictures and sound simultaneously in real time.

upgrade - The process of changing to a newer, usually more powerful version of a computer system or a component.

uplink - A satellite dish that transmits signals up to a satellite. These signals are then sent back to Earth to a downlink (receiving) site.

UTP (unshielded twisted pair cable) - A wiring scheme with one or more pairs of 18- to 24-gauge copper strands usually covered with plastic or PVC.

URL (uniform resource locator) - The generic set of all names/addresses that can lead to any file on any machine anywhere in the world.

video conferencing - A form of teleconferencing where participants see and hear other participants in remote locations. Video cameras, monitors, codecs and networks allow synchronous communication between sites.

WAN (wide area network) - A network capable of transmissions over large, geographic areas.

wireless - Voice, data or video communications without the use of connecting wires.

WWW (World Wide Web) - A hypermedia information retrieval system linking a variety of Internet-accessible documents and data files (text and graphics). Often referred to as "the Web."

APPENDIX A-2

RESOURCES

Print

Magazines such as *MACWORLD, ELECTRONIC LEARNING, TECHNOLOGY AND LEARNING, MACWEEK, INTERNET WORLD, CD-ROM PROFESSIONAL, NEW MEDIA and MORPH'S OUTPOST.*

NetDay 96. *Cable Installation Guide.* Can be found at WWW.OPI.MT.GOV under Net Day.

Instructional Technology Consultants

The following list of individuals have been recommended as consultants to assist school districts with the integration of technology into their district curriculum. Please contact them to determine specific skills and costs involved.

Steve Meredith
Office of Public Instruction-Helena
406-444-3095/smeredith@metnet.mt.gov

Scott Buswell
Office of Public Instruction-Helena
Helena, MT 59620-2501
406-444-4326/sbuswell@opi.mt.gov

Barb Andersen*
6th Grade Teacher
Peterson Elementary
Kalispell, MT
406-756-5067 (W)/barba@cyberport.net
406-257-4469 (H)

Scott Andrew
Technology Coordinator/Miles City Unified School District
1604 Main
Miles City, MT 59301
406-232-4920/scott@metnet.mt.gov
FAX 232-4923

Penny Benner*
Elementary Teacher
Plevna, MT
406-772-5666 (W)/pkb@mcn.net
406-772-5544 (H)

Michele Burchett
US West Communications
Helena, MT
406-457-9155

Cynthia Denton
Hobson, MT
406-423-5617 (W)/cdenton@cris.com
406-423-5505 (H)

Diane Econom*
Middle School Teacher
Denton, MT
406-567-2270 (W)/deconom@cris.com
406-567-2658 (H)

Suzy Flentie*
(Learning and Technology
Montana Teacher of the Year)
6th Grade Teacher
Lewistown, MT
406-538-2366 (W)/sflentie@sunrise.alpinet.net
406-538-5209 (H)

Carole Goettemoeller*
High School Teacher
Denton, MT
406-567-2270 (W)/caroleg@cris.com
406-567-2353 (H)

Michael Hall, Title III Specialist
Office of Public Instruction
Helena, MT
444-4422 ph
mhall@opi.mt.gov

Druann Kerns*
Middle School Teacher
Laurel, MT
406-628-6919 (W)/druann@cris.com
406-628-8438 (H)

Bill Lee*
6th Grade Teacher
Winifred, MT
406-462-5420 (W)/billl@metnet.mt.gov
406-462-5496 (H)

Wayne Mangold*
High School Teacher
Plevna, MT
406-772-5666 (W)/waynem@mcn.net
406-772-5831 (H)

Jane Rhodes*
Elementary, Middle, and High School Teacher
Joplin-Inverness School
406-292-3382 (W)/janeer@cris.com
406-355-4537 (H)

Barb Ridgeway
Helena Public School District #1
406-447-8526/bridgway@mtlib.org

Linda Robinson*
Middle School Teacher
Billings, MT
406-255-3740 (W)/lindar@mcn.net
406-656-1871 (H)

Carol Skiles*
Middle School Teacher
Dillon, MT
406-683-2368 (W)/cskiles@bmt.net
406-683-6568 (H)

Darlene Staffeldt
Montana State Library - Helena
406-444-5 381/dmstaff@wln.com

* Trained by the Reach for the Sky project funded by the Annenberg/CPB grant through Western Montana College of The University of Montana.

Web Sites

General Technology

National Center for Technical Planning
http://www.nctp.com

U.S. Department of Education
http://www.ed.gov/Technology/

Northwest Educational Technology Consortium (NWREL)
http://www.netc.org/fcc/

E-Rate

OPI WebSite E-Rate (from Homepage)
http://www.metnet.state.mt.us

EdLinc
http://www.itc.org/edlinc/

National Exchange Carrier Association (NECA)
http://www.neca.org/

Appendix A-3

Acceptable Use Policy

An Acceptable Use Policy (AUP) is a guideline created by a computer administrator that details the type of activities that are allowed on a computer network. In an educational environment, such a policy is necessary for several reasons:

*It will help educate your students and their parents about the kinds of tools they will use on the network and what they can expect from those tools.

*It will help to define boundaries of behavior, and, more critically, specify the consequences of violating those boundaries.

*It specifies the actions that a system administrator might take in order to maintain or "police" the network—so there are no surprises during the school year. They may outline general worse case consequences or specific responses to specific policy violation situations.

Every school system that encourages students to use the Internet should have a clearly defined AUP.

Ten Commandments for Computer Ethics (Computer Ethics Institute):

1. Thou shalt not use a computer to harm other people.
2. Thou shalt not interfere with other people's computer work.
3. Thou shalt not snoop around in other people's files.
4. Thou shalt not use a computer to steal.
5. Thou shalt not use a computer to bear false witness.
6. Thou shalt not use or copy software for which you have not paid.
7. Thou shalt not use other people's computer resources without authorization.
8. Thou shalt not appropriate other people's intellectual output.
9. Thou shalt think about the social consequences of what you write.
10. Thou shalt use a computer in ways that show consideration and respect.

Sample Student Acceptable Use Policy

New technologies are shifting the ways that information may be accessed, communicated, and transferred. Those changes may also alter instruction and student learning. (school name _____offers students access to the electronic information highway and the Internet. We call this service _____-Net.

Along with access to computers and people all over the world comes the availability of materials that may not be considered appropriate in the classroom. However, on a global network it is impossible to control all materials. Ultimately, the school staff, parents and guardians of minors are responsible for setting and conveying the standards that students should follow when using media and information sources. (school) supports and respects each family's right to decide whether or not to allow their child to apply for access to ____-Net.

Rules and Responsibilities

Students are responsible for good behavior on school computer networks just as they are in a classroom or school hallway. Communications on the network are often public in nature. General school rules for behavior and communications apply.

____-Net is provided for students to conduct research and communicate with others in relation to school work. Access to network services is given to students who agree to act in a considerate and responsible manner. Parent permission is required.

Access is a privilege, not a right. Therefore, based upon the acceptable use guidelines outlined in this document, the system administrators will deem what is inappropriate use and their decisions are final. The system administrators may close an account at any time. The administration, faculty, and staff of (school) may deny, revoke, or suspend specific user accounts.

Individual users of the ___-Net are responsible for their use of the network. The use of their account must be in support of education and research and must be consistent with academic expectations of (school). Use of other organizations' networks or computing resources must comply with the rules appropriate for that network. Transmission of any material in violation of U.S. or state regulations, including copyrighted, threatening, or obscene materials, is prohibited. Use for commercial activities by for-profit organizations, product promotion, political lobbying, or illegal activities is strictly prohibited.

The user is expected to abide by the following network rules of etiquette:

- Be polite. Do not write or send abusive messages.
- Use appropriate language. Do not swear, use vulgarities or any other inappropriate language.

- Transmission of obscene materials is prohibited. Sending or receiving offensive messages or pictures from any source will result in immediate suspension of privileges.

- Do not reveal the personal address or phone number of yourself or other students.

- Do not communicate any credit card number, bank account number, or any other financial information.

- Electronic mail is not guaranteed to be private. People who operate the system do have access to all mail. Inappropriate messages can result in suspension of privileges.

- Do not use the network in such a way that would disrupt the use of the network by other users.

- Vandalism - any malicious attempt to harm or destroy data of another user will not be tolerated. Any questionable action will result in cancellation of user privileges.

Violation of any of the above-mentioned rules and responsibilities will result in a loss of access and may result in other disciplinary or legal actions.

Student Agreement and Parent Permission Form

Net User Agreement and Parent Permission Form

After reading the Net Use Rules and Responsibilities, please complete this form to indicate that you agree with the terms and conditions outlined. The signatures of both the student and parent/guardian are mandatory before access may be granted to ___-Net. This document, which incorporates the ___-Net Use Procedure, reflects the entire agreement and understanding of all parties.

As a user of the _____ School District computer network, I have read and hereby agree to comply with the _____-Net Use Procedure.

Student Signature:_____ Date:_____

Student Name (Please Print):_____

Student's School:_____

Grade:_____ Date of Birth:_____

As parent/legal guardian of the student signing above, I grant permission for my child to access networked computer services such as electronic mail and Internet. I have read and agree to the ____-Net Use Procedure, and I understand that I may be held responsible for violations by my child. I understand that some materials on the Internet may be objectionable; therefore, I agree to accept responsibility for guiding my child, and conveying to her/him appropriate standards for selecting, sharing and/or exploring information and media.

Parent/Guardian Signature:_____ Date:_____

Parent/Guardian Name (Please Print):_____

Street Address:_____

Home Telephone:_____ Daytime Telephone:_____

Complete and return to your child's school.

Equal Opportunity/Affirmative Action Employer Offering Equal Educational Opportunities

Sample Staff Acceptable Use Policy

New technologies are shifting the ways that information may be accessed, communicated, and transferred. Those changes may also alter instruction and student learning. (school) ____ offers staff members access to the electronic information highway and the Internet. We call this service ____-Net.

Along with access to computers and people all over the world comes the availability of materials that may not be considered appropriate in the workplace. However, on a global network it is impossible to control all materials. Ultimately, the staff is responsible for setting and conveying the standards that should be followed when using media and information sources.

Rules and Responsibilities

Staff members are responsible for good behavior on computer networks just as they are in an office setting. Communications on the network are often public in nature. General rules for behavior and communications apply.

_____-Net is provided for staff members to conduct research and communicate with others in relation to school work. Access to network services is given to staff members who agree to act in a considerate and responsible manner. Access is a privilege, not a right. Therefore, based upon the acceptable use guidelines outlined in this document, the system administrators will deem what is inappropriate use and their decisions are final. The system administrators may close an account at any time. The administration, faculty, and staff of ____(school)__ may deny, revoke, or suspend specific user accounts.

Individual users of the ___-Net are responsible for their use of the network. The use of their account must be in support of education and research and must be consistent with academic expectations of __(school)__. Use of other organizations' networks or computing resources must comply with the rules appropriate for that network. Transmission of any material in violation of U.S. or state regulations, including copyrighted, threatening, or obscene materials, is prohibited. Use for commercial activities by for-profit organizations, product promotion, political lobbying, or illegal activities is strictly prohibited. Use of public property for personal gain is a felony and is subject to prosecution.

The user is expected to abide by the following network rules of etiquette:

- Be polite. Do not write or send abusive messages.
- Use appropriate language. Do not swear, use vulgarities or any other inappropriate language.
- Transmission of obscene materials is prohibited. Sending or receiving offensive messages or pictures from any source will result in immediate suspension of privileges.

- Do not reveal the personal address or phone number of yourself or other students.
- Do not communicate any credit card number, bank account number, or any other financial information.
- Electronic mail is not guaranteed to be private. People who operate the system do have access to all mail. Inappropriate messages can result in suspension of privileges.
- Do not use the network in such a way that would disrupt the use of the network by other users.
- Vandalism - any malicious attempt to harm or destroy data of another user will not be tolerated. Any questionable action will result in the cancellation of user privileges.

Violation of any of the above-mentioned rules and responsibilities will result in a loss of access and may result in other disciplinary or legal actions.

Sample Staff Use Agreement Form

After reading the _____-Net Use Rules and Responsibilities, please complete this form to indicate that you agree with the terms and conditions outlined. Your signature is required before access may be granted to ___-Net. This document, which incorporates the ___-Net Use Procedure, reflects the entire agreement and understanding of all parties.

As an employee of the _____ School District and a user of the computer network, I have read and hereby agree to comply with the ____-Net Use Rules and Responsibilities.

Signature:_____ Date:_____

Full Name (Please Print):_____

Work Location:_____

Job Title:_____ Date of Birth:_____

Home Address:_____

Home Telephone:_____ Daytime Telephone:_____

Complete and return to your supervisor.

Appendix B-1

Hardware Inventory Sample Forms

Technology Inventory—Sample

	Computer Lab	Classroom	Library/ Media Center	Admin. Office	Other Location	Planned Future Acquisitions				
						Year 1	Year 2	Year 3	Year 4	Year 5
A. Apple IIe/GS										
B. Mac LCII or earlier										
C. Mac LCIII or later										
D. Mac Power PC										
E. Mac Power Book										
F. EMATE										
G. Number of computers listed above that are Internet compatible										
H. Number of computers listed above that are multimedia equipped										
I. Number of computers listed above that have CD ROMS										
J. 286 or earlier		4								
K. 386		4		1						
L. 486		4		1						
M. Pentium (586)						4		4 more		4 more
N. PC Laptop							10		10 more	
O. Other										
P. Number of computers listed in this section that are Internet compatible			2	1		4		4 more		4 more
Q. Number of computers listed in this section that are multimedia equipped		8	2	1		4		4 more		4 more
R. Number of computers listed in this section that have CD ROMS			2	1		4		4 more		4 more

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Technology Inventory—Sample

	Computer Lab	Classroom	Library/ Media Center	Admin. Office	Other Location	Planned Future Acquisitions				
						Year 1	Year 2	Year 3	Year 4	Year 5
S. Number of PCs running Windows		4	2	1		4		4 more		4 more
T. Number of PCs running Windows 95				1		7		4 more		4 more
U. Portable Keyboard (e.g., Alpha Smarts, Dram Writers, etc.)										
V. Other										
Peripheral Devices										
A. Printers		6	4	1						
B. Scanners							2			
C. Digital Cameras										
D. Modems (28.8 bps or faster)										
E. Assistive/Adaptive Devices										1
F. Projection Devices								1		
G. TV Monitors			2						2	
H. VCR Units			2						2	
I. Laser Disk Players										
J. Satellite Dish			1							
K. Video Cameras			2			1				
L. Fax machines			1	1						
M. Other										

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Technology Inventory—Sample

	Computer Lab	Classroom	Library/ Media Center	Admin. Office	Other Location	Planned Future Acquisitions				
						Year 1	Year 2	Year 3	Year 4	Year 5
Network Equipment										
A. Hubs										
B. Routers							1			
C. Servers			1							
D. Other										

Technology Inventory—Sample

	Computer Lab	Classroom	Library/ Media Center	Admin. Office	Other Location	Planned Future Acquisitions				
						Year 1	Year 2	Year 3	Year 4	Year 5
A. Apple IIe/GS										
B. Mac LCII or earlier										
C. Mac LCIII or later										
D. Mac Power PC										
E. Mac Power Book										
F. EMATE										
G. Number of computers listed above that are Internet compatible										
H. Number of computers listed above that are multimedia equipped										
I. Number of computers listed above that have CD ROMS										
J. 286 or earlier										
K. 386										
L. 486										
M. Pentium (586)										
N. PC Laptop										
O. Other										
P. Number of computers listed in this section that are Internet compatible										
Q. Number of computers listed in this section that are multimedia equipped										
R. Number of computers listed in this section that have CD ROMS										

Technology Inventory—Sample

	Computer Lab	Classroom	Library/ Media Center	Admin. Office	Other Location	Planned Future Acquisitions				
						Year 1	Year 2	Year 3	Year 4	Year 5
S. Number of PCs running Windows										
T. Number of PCs running Windows 95										
U. Portable Keyboard (e.g., Alpha Smarts, Dram Writers, etc.)										
V. Other										
Peripheral Devices										
A. Printers										
B. Scanners										
C. Digital Cameras										
D. Modems (28.8 bps or faster)										
E. Assistive/Adaptive Devices										
F. Projection Devices										
G. TV Monitors										
H. VCR Units										
I. Laser Disk Players										
J. Satellite Dish										
K. Video Cameras										
L. Fax machines										
M. Other										

Technology Inventory—Sample

	Computer Lab	Classroom	Library/ Media Center	Admin. Office	Other Location	Planned Future Acquisitions				
						Year 1	Year 2	Year 3	Year 4	Year 5
Network Equipment										
A. Hubs										
B. Routers										
C. Servers										
D. Other										

Appendix B-2

Staff Technology Survey

Staff Technology Survey *

A. Rate yourself in terms of your level of use and understanding:

scale:
0 = doesn't apply to me
1 = no experience at all in this
2 = novice; limited experience
3 = know how, but not using at this time
4 = use occasionally
5 = use frequently; know very well

1. Keyboarding instruction ..... ____
2. Word processing ..... ____
3. Multi-media ..... ____
   (includes scanners, digital cameras, dig, video, etc.)
4. Multi-media product production ..... ____
   (use of hyper-studio, digital chisel, etc.)
5. CD-Rom software ..... ____
6. E-mail ..... ____
7. Internet/web resources ..... ____
8. Grade keeping/management ..... ____
9. Technical/trouble shooting ..... ____

B. Which would you say should be our <u>top 3</u> emphases in technology in the next 3 years? (in order, 1 being the most important, 3 being the least)

example: acquisition of hardware or software, curriculum integration, internet access

#1 _____

#2 _____

#3 _____

C. In which of the areas in A would you like to see more training available?

D. Do you feel that the software you have at your disposal right now is appropriate for your class program? Yes_____ No_____

Is it in sync with district/consortium guidelines? Yes_____ No _____

E. What kind of technology would you like to see our district pursue more aggressively in years ahead?

F. What are your primary concerns or fears regarding forthcoming changes in technology?

G. Do you have a desktop or laptop computer at home?

Yes_____ No_____

If yes, do you use it for

word processing	Yes_____ No_____
multi-media production	Yes_____ No_____
CD-Rom software viewing	Yes_____ No_____
E-mail	Yes_____ No_____
Internet use	Yes_____ No_____
Grade keeping	Yes_____ No_____

*Adapted from Mission Valley Consortium

APPENDIX B-3

GETTING ONLINE*

At a minimum, you'll need the following to access a network:

A personal computer,
A modem,
Communications software,
An account with a network provider.

It doesn't matter what kind of a computer you have--you can access a network with an IBM PC, a look-alike, or a Macintosh. If your computer is fairly new, you may have a built-in modem--a telecommunications device that lets your computer connect to another through the phone lines.

If you don't have a built-in modem, of if you want a faster one, you can buy one to add to your computer. The important thing to know about modems is that faster is better. You can tap into a network with a 2400 bps modem (that's bits per second, the speed information is sent between machines) but you'll have much less wait time if your modem speed is Kips4.4 Kbps Kips8.8 Kbps. Having a faster modem is especially important if you want to capture pictures or sounds as well as just text.

Communications software is a program that resides on your machine, tells the modem what to do, and enables you to send ("upload") and receive ("download") information. If your computer has a built-in modem, it already has communications software too. If you're buying a modem, communications software is usually included in the price.

With a computer, a modem, and communications software, you can dial directly into a bulletin board--an electronic site where people post messages and files, usually about a single topic. (Some bulletin boards have toll-free numbers; for others, you'll pay the price of a local or long-distance phone call while online.)

*Excerpted from *Getting Online* from the U.S. Department of Education.

Appendix C -1

Required Elements of a Technology Plan for TLCF Grant Application

Nancy Keenan, Superintendent
Office of Public Instruction
PO Box 202501
Helena, MT 59620-2501

Grant Evaluation Rubric 1998-1999 Technology Literacy Challenge Fund Grants

TECHNOLOGY PLAN—25 POINTS POSSIBLE (10 items at 5 points each = 50, weighted at .5 ='s 25 points possible.)

OPI USE ONLY:	REVIEWER USE:
Application Total_____	LE: __ __ __ __ Dist. Name:_____ Reviewer:_____

		Information provided clearly and specifically details the required elements.				
		Disagree		Agree		Strongly Agree
A.	The Plan must provide a description of the type of technologies to be acquired, including specific provisions for the technologies to work together and, to the extent practical, with existing technologies.	1	2	3	4	5
B.	The Plan must provide an explanation of how acquired technologies will be integrated into the curriculum to enhance teaching, training and student achievement.	1	2	3	4	5
C.	The Plan must provide an explanation of how programs will be developed in collaboration with existing adult literacy service providers to maximize the use of technologies.	1	2	3	4	5
D.	The Plan must describe how the district will ensure ongoing, sustained professional development for teachers, administrators and school library media personnel to further the use of technology in the classroom or library media centers.	1	2	3	4	5
E.	The Plan must identify the source or sources of ongoing training and technical assistance available to schools, teachers and administrators served by the district. (This may also include the activities of the federal programs such as the district's ESEA Titles I, II, IV and VI.)	1	2	3	4	5
F.	The Plan must provide a description of the supporting resources, such as services, software and print resources, which will be acquired to ensure successful and effective use of technologies that are acquired.	1	2	3	4	5
G.	The Plan must reflect the projected timetable for implementing the strategic long-range (3-5 years) plan in schools.	1	2	3	4	5
H.	The Plan must address the projected total cost of technologies to be acquired and related expenses needed to implement the strategic long-range plan.	1	2	3	4	5
I.	The Plan must describe how the district will coordinate available federal, state and local grant resources to implement the strategic long-range technology plan. (This may also include the activities of the federal programs such as the district's ESEA Titles I, II, IV and VI.)	1	2	3	4	5
J.	The Plan must reflect the community involvement in the development process of the strategic long-range technology plan.	1	2	3	4	5

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Total from above _____ X .5 = _____

Appendix C-2

Table of Where Required TLCF Elements Can Be Found in This Document

1998-1999 TECHNOLOGY LITERACY CHALLENGE FUND APPLICATION

TECHNOLOGY PLAN REQUIREMENTS — 25 points possible

All applicants must submit their local long-range technology plan (3 to 5 years) to OPI as part of the application process. Each plan must contain the following elements as required by federal and state regulations. Enter the appropriate page number from the district technology plan for each of the items below.

A. The Plan must provide a description of the type of technologies to be acquired, including specific provisions for the technologies to work together and, to the extent practical, with existing technologies.

SEE PAGES 6-8, 14 OF THIS DOCUMENT.

B. The Plan must provide an explanation of how acquired technologies will be integrated into the curriculum to enhance teaching, training and student achievement.

SEE PAGES 9-10 OF THIS DOCUMENT.

C. The Plan must provide an explanation of how programs will be developed in collaboration with existing adult literacy service providers to maximize the use of technologies.

SEE PAGE 12 OF THIS DOCUMENT.

D. The Plan must describe how the district will ensure ongoing, sustained professional development for teachers, administrators and school library media personnel to further the use of technology in the classroom or library media centers.

SEE PAGES 10-11 OF THIS DOCUMENT.

E. The Plan must identify the source or sources of ongoing training and technical assistance available to schools, teachers and administrators served by the district. (This may also include the activities of the federal programs such as the district's ESEA Titles I, II, IV and VI.)

SEE PAGE 11 OF THIS DOCUMENT.

F. The Plan must provide a description of the supporting resources, such as services, software and print resources, which will be acquired to ensure successful and effective use of technologies that are acquired.

SEE PAGE 13 OF THIS DOCUMENT.

G. The Plan must reflect the projected timetable for implementing the strategic long-range (3-5 years) plan in schools.

SEE PAGE 14 OF THIS DOCUMENT.

H. The Plan must address the projected total cost of technologies to be acquired and related expenses needed to implement the strategic long-range plan.

SEE PAGE 14 OF THIS DOCUMENT.

I. The Plan must describe how the district will coordinate available federal, state and local grant resources to implement the strategic long-range technology plan. (This may also include the activities of the federal programs such as the district's ESEA Titles I, II, IV and VI.)

SEE PAGE 11 OF THIS DOCUMENT.

J. The Plan must reflect the community involvement in the development process of the strategic long-range technology plan.

SEE PAGES 11-12 OF THIS DOCUMENT.

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Appendix D-1

Sample E-Rate Technology Plan

VALIER COMBINED SCHOOL DISTRICT

TECHNOLOGY PLAN

County Code----37 Legal Entity-----0680 School Code---0775

Plan Overview: The Valier combined school district technology purchase and training plan described in this document is designed to maximize the impact of and useful life of computers in our school district by careful assignment of resources. To extract the maximum value from our computers and staff it is important that all new equipment be placed into service at the highest need area and older equipment be migrated to less demanding roles. While this may seem to favor some fields of endeavor over others, it is the only way to optimize the system as a whole. In reality, the addition of such systemwide features as e-mail, computer scheduling, shared CD access and shared Internet access will provide all students and staff immediate benefits.

A-1 Computer Equipment

The computer equipment currently available in our school district is as follows:

High School--We have 44 PCs, one Apple IIGS, and one server. Our server is a Dell PowerEdge 2100--200 MHz. It serves all of our high school and elementary computers. We have a minimum of one computer in each classroom. Our business lab has fifteen (15) P166 w/CD ROMS, our math lab has six (6) DTC--PCs, our computer department has four (4) P166 CAD equipped computers, our counseling department has two (2) DTC-PCs, the library has fine (5) computers, and the remaining computers are in classrooms and central offices. The majority of them being PCs and running at 40 MHz or faster.

There are two modems in the high school. One is in the superintendent's office (Practical Peripheral--28800) and one in the guidance office (Practical Peripheral--9600).

The high school has fourteen printers (4 Lazer, 3 Deskjet color, 2 Okidata, 4 Epson, and one Imagewriter). It also has two Scanners (Scanmaker E6, HP Scanjet 3C).

Elementary School--Our elementary school is equipped with forty two (42) computers, all of varying models and capabilities. We have ten (10) DTC-PCs in our elementary library, seven (7) Model 25s, with a Model 80-386 sever, operating as a separate lab in our sixth grade room, and a minimum of two (2) computers in each classroom. These computers range from IBM Model 25s to IBM Model 30s. Our special education department has one Model 30 and one P166 w/16x CD ROM. The elementary secretary has a 150 MHz PC and the elementary principal has a 60 MHzPC.

The elementary has sixteen (16) printers. The printers include three Deskjet color, one Okidata, seven Epson LQs, four IBM proprinters, and one Imagewriter. We have no modems in the elementary.

This "plan" was put in effect July 1, 1997. The purchase and rotation of computers for the next four years are as follows:

1998 - Purchase 4 multi-media stations

Purchase 10 work stations for the elementary library

The old multi-media stations will be put in the high school classrooms. The 10 old work stations will replace the Model 30s in the elementary classrooms. Seven of the Model 30s will replace seven Model 25s (which will be retired), the remaining three Model 30s will stay in the classrooms.

1999 - Purchase 4 stations for the high school library to be used as research.

Purchase 4 stations for the CAD/CAM lab.

The older equipment will migrate down to the classrooms, teachers and administrators on a replacement of the oldest equipment basis.

2000 - Replace filer server and OS upgrade.

Replace 4 stations for AV carts.

The Elementary school's goal of three computers in each classroom will be met during this upgrade, but two for the classrooms (6&7) will still not be entirely on the Windows platform.

2001 - Replace 4 CAD/CAM computers with monitors.

Replace 15 work stations for Business lab.

This will see the retirement of the last IBM Model 30s and Model 60s as well as removal of all 386s from the high school and the retirement of several 386s from the elementary school.

A-II Internal Connections

During the summer of 1996, the Valier Public Schools "wired" our K-12 facilities with network lines and video lines. The elementary and high school buildings were connected by fiber optic with both libraries being the central focal point. Each classroom, library, and central offices were wired with two network jacks and one video jack. The labs were wired with enough jacks to accommodate all computers. Our video equipment is stationed in each of our libraries. Each classroom has a television with the capabilities of receiving satellite, cable, and VHS transmission. In the summer/fall of 1997, we networked our K-12 facility. We have one server which handles all of the computers new enough to be networked. We have local e-mail capabilities, Internet capabilities, and the ability to pull elementary and/or high school programs off the network. During the fall of

1997, we contracted with MARSWEB, an internet provider from Missoula, to be a local hub for their services. MARSWEB installed a 56K cable, seven phone lines, seven modems, a router, and a hub so our community can have access to MARSWEB.

A-III Computer Software

The network software our school is using is Novell Intra Netware. We also run Managewise and Groupwise for local e-mail service. MARSWEB is on line which gives us access to the Internet through the Netscape Navigator and Internet Explorer. Presently, our computers on the network run either Windows 95, Windows 3.1 or 3.11, or DOS.

Our future plans include continual software update as we update our hardware. As software is upgraded by the companies, we will upgrade in our system. Eventually, we will be running Windows NT and/or Windows 97.

A-IV Experience and Training

Our entire K-12 staff (teachers, secretaries, administrators) have had a one-day inservice on our new network system. The inservice included login on the network, using group wise (local e-mail), how to bring up programs on the computer, etc. Our business teacher, science teacher , and elementary librarian have been designated as "administrators" of the system. These people have had an additional day of training on the network consisting of adding people to the network, loading and unloading programs, and general function of the network. Many of our teachers have taken courses for Windows 95, Internet, Novell, Microsoft Office and others relating to computer functions.

Our district is committed to continually inservicing our staff on the system. We are bringing in a computer specialist over the 1997 MEA days to show our staff different ways to utilize computers in the classroom. We have committed to sending one of our administrators of the system to Portland for a Northwest Regional Lab workshop on Internet training and use. As our computers and programs are updated through the equipment plan, we will be educating our staff accordingly.

A -V Maintenance Contracts

Currently, we are negotiating a contract for a Traveling Technology Coordinator Route. This contract would be for four hours per week at $35.00 per hour. This person would be shared by other schools in our area. We also contract to have our computers cleaned every summer. This has cost us $12.00 per hour. It usually takes one hour per machine.

A-VI Electrical Capacity

Our elementary and high school buildings are capable of handling the current number of computers. The elementary has a capacity of 400 amps with 120/208 volts. The high school has a capacity of 800 amps with 120/208 volts

B Plan for Use of Technology

The administration, staff, and students of the Valier Public Schools use the current technology hardware and software daily. The administration utilizes the technology for electronic mailing of reports to the state department, running districtwide budgets and accounting programs, keeping all grades, report cards, and transcripts on file. They also use the local e-mail software for communication within the district and internet access to keep current on education reform.

The district staff utilizes our local e-mail for communication purposes. The internet access is used to gather information to supplement their teaching, whether it be as research, locating lesson plans, e-mail or using as a lesson. The elementary and high school staff use the computers as a teaching tool and require the students to do numerous assignments on the computer.

The students have used the computers in such classes as business, accounting, keyboarding, work processing, creative writing, etc. They will continue to do this. With the installation of the new network system and districtwide internet, the students will have the ability to do more extensive research within the confines of the school allowing for immediate results in information. The students now have the capability of saving assignments on their home directory, coming back at a different time and to a different computer, logging in to their directory and finishing their assignment.

In regards to our media equipment: the district has committed itself to continual and increasing use of satellite information for student educational purposes, staff instructional training, and community use for classes and any other training that may come over the satellite. Currently, our multi-media class produces morning announcements that are broadcast live to every classroom. The administration uses the center to tape various educational training programs, or watch them live if the time permits, for staff development. Our history teachers will use the news on a daily basis and our science teachers will record many science programs for use as supplemental teaching materials.

In summary, School District #18 has committed itself over the past three years to enter into the technological world. We have done this with very little, if any, grant money. We are committed, as you can see by our five-year equipment purchase plan, to continue updating to keep on the cutting edge of technology. We will continue to have regular staff development in areas of software, use of the system, and trouble shooting.

Appendix D-2

Floor Plan

Main Floor Elementary
15—W/S
HUB Capacity 18 W/S
CAT.5 TWISTED PAIR
COAX BACKBONE
1ST GRADE
2-W/S
COAX BB
FROM 1ST FLOOR
SPECIAL ED
4-W/S
2ND GRADE
2-W/S
COAX BB
TO 3RD FLOOR
3RD GRADE
2-W/S
9 PORT HUB
9 PORT HUB
COAX BACKBONE
FACILITY ROOM
1-W/S
KINDERGARTEN
2-W/S
RR
DINING ROOM
MUSIC
2-W/S
RR
21